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Engineering Submittal and Specification

Sections 07,22,23,26,27,28,33

Non-Penetrating Rooftop Pipe, Conduit and Equipment Supports

PART 1: General

1.01 Section Includes

A. Load Bearing, Non-Penetrating, Rooftop Supports for:

1. Gas piping
2. Plumbing and Mechanical systems
3. Industrial piping
4. Conduits and Cable tray
5. HVAC equipment and ductwork
6. Telecommunication equipment
7. Solar panels
8. Roof top walkways

1.02 Related Sections

Division 07- Thermal and Moisture Protection

Sect. 07 01 70-Operation & Maintenance of Roof Specialties and Accessories

Sect. 07 06 70 Schedules for Roof Specialties and Accessories

Sect. 07 72 00-Manufactured Roof Accessories

Sect. 07 7213-Manufactured Curbs

Sect. 07 72 46 Roof Walkways

Division 22- Plumbing

Sect. 22 05 29 Hangers & Supports for Plumbing Piping and Equipment

Sect. 22 11 19 Domestic Water Piping Specialties

Sect. 22 63 13 Gas Piping for Laboratory and Health Care Facilities

Division 23- HVAC

Sect. 23 05 29 Hangers & Supports for HVAC piping and Equipment

Sect. 23 11 23 Facility Natural Gas Piping

Sect. 23 21 13 23 Aboveground Hydronic Piping

Sect. 23 22 13 Steam & Condensate Heating Piping

Sect. 23 23 16 Refrigerant Piping Specialties

Sect. 23 33 00 Air Duct Specialties

Sect. 23 56 16 Packaged Solar Heating Equipment

Sect. 23 83 16 Radiant Heating Hydronic Piping

Division 26- Electrical

Sect. 20 05 29 Hangers & Supports for Electrical Systems

Sect. 26 05 36 Cable Trays for Electrical Systems

Sect. 23 33 16 Battery Racks



Division 27- Communications

- Sect. 27 05 28 29 Hangers & supports for Communication Systems
- Sect. 27 05 28 36 Cable Trays for Communication Systems
- Sect. 27 11 16 Communication Cabinets, Racks, Frames & Enclosures
- Sect. 27 13 23 Communication Cable Management & Ladder Racks
- Sect. 27 53 19 Internal Cellular, Paging & Antenna Systems

Division 28- Electronic Safety and Security

- Sect. 28 05 28 29 Hangers & Supports for Electronic Safety and Security
- Sect. 28 05 28 36 Cable Trays for Electronic Safety and Security

Division 33- Utilities

- Sect. 33 81 16 Antenna Towers

1.03 References

- A. ASTM D792 – Standard Test Methods for Density and Specific Gravity (Relative Density)
- B. ASTM D638 – Standard Test Method for Compressive Properties of Rigid Plastics
- C. ASTM D256 – Standard Test Methods for the Izod Pendulum Impact Resistance of Plastics
- D. ASTM D648 – Standard Test Method for Deflection Temperature of Plastics
- E. ASTM A 123/A 123M – Standard Spec. for Zinc (Hot Dipped Galv.) coating on steel products
- F. ASTM A 525 – Standard Spec. for Zinc (Hot Dipped Galv.) coating for sheet steel

1.04 System Description & Specification

Description:

Roof top piping and equipment supports for use on commercial rooftops without roofing penetrations, flashings or damage to roofing membrane.

Specification;

Roof top support blocks for gas piping, plumbing, HVAC, conduit, cable tray, and mechanical equipment shall be **Roof Top Blox (RTB-01)**. The support body shall be made of UV- resistant Polypropylene Copolymer. Base platform material shall be 1" thick, 25psi, type 4 closed cell structural foam to distribute and evenly cushion loads. Support top surface shall have molded in pipe organizing saddles and strut mounting cradle. The top surface shall also have screw guide indents and engineered internal screw thread gripping feature. Block must accept 3/8" and 1/2" threaded rods (ROD-03) using side entry nut slots to allow fast top side assembly and piping height adjustments. Aluminum rollers (ROL-05 or ROL-06) shall be installed on long piping runs. Securing brackets (SCB-07) and adhesive (ADH-12) recommended for permanently securing block into its final installed position, anchoring against wind, rain and snow loads.

1.05 Submittals

- A. Submit under provision of Sect. 01 33 00 []
- B. Submit under provisions as specified by the consulting engineer.
- C. Submit product application drawings for all products proposed for use, showing product characteristics and methods of installation and instruction.



1.06 Quality Assurance

Manufacturer: Core products shall be manufactured in the USA, with product testing verification available upon request.

Installer: Currently licensed and insured appropriately to install rooftop supports and associated equipment or systems

1.07 Delivery Storage and Handling

Deliver, store and handle products under provisions of Sect. 01 60 00 []

Deliver all materials to job site in manufacturer's original packaging and labeling.

1.08 Warranty

Manufacturer must warrant its products to be free from manufacturer defect for a period of 5 years.

Part 2: Products

2.01 Manufacturers

Acceptable Manufacturer: Roof Top Blox
7 Main Street
Ellington, CT 06029
www.rooftopblox.com
email: info@rooftopblox.com

2.02 Materials and Testing

- A. Rooftop supports: Engineered supports specifically designed for installation without the need for roof penetrations or flashings, or otherwise causing damage to the roofing membrane.
- B. Supports shall be injection molded from high-impact Polypropylene Copolymer resin fortified with UV inhibitors.
- C. Supports shall have structural foam base, without any rigid plastic or sharp corners contacting roof membrane surface.
- D. Supports shall accept $\frac{3}{8}$ " or $\frac{1}{2}$ " threaded extension rods allowing installation and all height adjustment of piping from top side of block. Use only Zinc or Galvanized coated steel hardware. Always install loads as low as possible and centered on block for best stability.
- E. Supports shall offer accessory aluminum pipe rollers for piping up to 6" diameter. Aluminum rollers must be used on long piping runs to compensate for piping expansion and contraction due to temperature swings.



- F. Supports shall have a molded in strut mounting and alignment cradle. Supports shall be universally adapted to construct 2 or 4 block bridge assemblies using galvanized strut to spread out foot print and safely carry heavy and tall loads. Supports must also mechanically link together end to end to create a continuous multiple piping support platform.
- G. Supports shall have engineered non-penetrating securing brackets to secure the block to roofing surface. Brackets shall be designed to adhere down and hold support block and **system piping** in place against the forces of moderate wind, rain and snow loads. Brackets shall be adhered in place once system assembly is complete.
- H. Supports shall be tested and conform to the following criteria:
 - Water Absorption @ 24hrs: RTB-01 submerged for 24hrs with insignificant water absorption
 - Drop Test from 4' @ 0°F: RTB-01 dropped on 3 sides with no cracking or breaking
 - Wind Tunnel Test 2hrs@150mph, two directions on EPDM, PVC, TPO, Asphalt &Metal roofing: RTB-01 with Securing Brackets (SCB-07) and Adhesive (ADH-12) tested in wind tunnel for 2hrs each from both front and side direction. There were no failures or release on any of the test samples. *The wind tunnel test did not include mounted piping and is not to be considered a seismic test.*
 - Load Bearing Test (distributed strut load) 450Lb, 8hr @ 200°F: RTB-01 tested without failure
 - Load Bearing Test (single point load no strut) 250Lb, 8hr @ 200°F: RTB-01 tested without failure
 - Load Bearing Test (two point load w/ ½" rods) 450Lb, 8hr @ 200°F: RTB-01 tested without failure
- I. Do not use blocks without supportive structural foam base cushion to absorb irregularities on roof surface. Base foot print must be continuous without voids or pockets to spread load over entire surface contacting roof membrane.
- J. Do not use pipe rollers made from plastic resin or molded rubber. Use only aluminum rollers.
- K. Do not use wood as a support block material.

2.03 Related Products

Contractor shall supply all struts, nuts, washers and fastening screws for required assemblies that are not included in manufacturer packaging. All Steel hardware shall be Galvanized or Zinc coated.

PART 3: Execution and Installations

3.1 Examination

- A. Verify roofing system is complete and ready to accept work in this section.
- B. Verify roof surface temperatures are above 40°F for proper securing bracket adhesive performance.
- C. Verify local regulation and code allowance of products and installation.



3.2 Preparation

- A. Remove all loose aggregate from under all support block positions on gravel roof tops.
- B. Remove dust, dirt and oil from area under Securing Brackets for proper adhesion.

3.3 Installation

Pipe, Conduit, and Mechanical Equipment roof top Support Systems:

- A. Locate Roof Top Blox (RTB-01) as indicated on drawings and as specified herein. Provide thorough and safe support of all piping and equipment whether or not shown in design layout.
- B. Provide and install RTB-01 support blocks spaced every 7' along piping system.
- C. Provide and install ROL-05 or ROL-06 aluminum rollers under piping on long piping runs where expansion and contraction is measurable due to temperature swings.
- D. Provide galvanized strut and strut accessories, zinc coated threaded rod, nuts, bolts, washers, piping clamps, and sheet metal screws where needed to properly mount piping and/or equipment on RTB-01.
- E. Provide and install SCB-07 Securing Brackets with ADH-12 adhesive on each block once system installation is completed and all supports are in final position.
- F. Replace or infill aggregate around supports on gravel rooftops.
- G. Do not exceed weight or height ratings on support blocks. Be sure applied loads are always stable from front to back and side to side. Build multiple block bridge assemblies with metal strut spreader to stabilize heavy, wide or tall loads if necessary. Good mechanical practice and safety must always be exercised.
- H. Consult manufacturer of existing or new roofing system if isolation pads are required between the roof membrane and support base.
- I. Consult manufacturer of existing or new roofing system to verify the appropriate primer and adhesive used to bond Securing Brackets to roofing surface.

End of Section